

a3 simulation, and represents in a single parameter ~~as~~ overall assessment of the model performance. In alternatives, fitness may depend on only a single important performance metric, or may depend on a combination of performance metrics. The applied genetic operators typically model actions occurring among biological organisms, and preferably act on the building blocks, mutating a single building block or exchanging building blocks between business models. Repeated selection and transformation of the fittest models leads to business models of improved performance for solving the business problem at hand as the generations pass.

*Please modify paragraph 16 as follows:*

a4 [0016] The methods and systems of the present invention can be applied to a wide of business problems. For example, not only can they ~~may~~ generate improved business models in response to the current state of an industry or business ecosystem, they may also discover entirely new business opportunities or entirely new business organizations not readily apparent to those of skill in the arts. In particular, these methods and system may find new ways of capturing value in an existing industry; may update business methods to continually adapt to changing consumer behaviors; may discover opportunities for new technologies. These systems and methods may transform potentially revolutionary technologies into revolutionary new business models that will best capture the value of the new technologies.

*Please modify paragraph 18 as follows:*

a5 [0018] A particular field where ~~this~~the methods and systems of this invention can be especially useful is, without limitation, the Internet economy, or the Internet ecosystem. Here, business methods are often more important than pure technology; typically a large number of business depend on each other's behavior and performance through a web of interactions (ranging from purely financial to technology-based to strategic partnerships, etc); "network" effects and highly nonlinear behavior may produce completely counterintuitive business results. It is likely that some resulting business models may be able to generate large rewards.

*Please modify paragraph 23 as follows:*

06 [0023] Still further aspects of the first embodiment include: business models including parameter data specifying the business operations described by the business models; business model descriptions with computer-simulateable value propositions (VP) which describe output values provided by businesses, namely descriptions of the natures of one or more goods or services provided, or qualities of the goods or services, or customers for goods and services, or relations with other business models, or marketing to customers or business models; business model descriptions with computer-simulateable operational approaches (OA) which describe inputs to businesses and transformations of inputs to output values by businesses, namely descriptions of inputs needed for the goods or services provided, or technology employed to produce the goods or services, or capital and labor needed for production; business model descriptions with computer-simulateable revenue mechanisms (RM) which describe pricing and cost models by which businesses acquire revenues, namely descriptions of a margin or an amount per transaction, or per unit time, or per unit volume, or transaction pricing mechanism, or a subscription pricing mechanism, or a flat rate pricing mechanism, or a membership fee pricing mechanism; and business models with descriptions of one or more inputs to a business, one ~~[[of]]~~ or more values output from a business, one or more transformations of inputs into output values by a business, labor and capital required for a business, and one or more pricing models for a business.

*Please modify paragraph 48 as follows:*

07 [0048] A business problem also generally relates to supplying particular goods, providing particular services, or offering particular values. By way of illustration, a business problem related to Internet services may be concerned only with the actual service provider businesses, and perhaps their customers. But it is not necessarily so limited, such a business problem may also be concerned with the suppliers of communications services used by the Internet services providers; it may also be concerned with ~~providers or~~ providers of Internet content, or with Internet retailers; it may be concerned with competitive media such as TV and newspapers. In other words, although business problems may be focused on certain goods or services, it may include consideration of suppliers or complementary or competitive goods (economically related businesses), or of the suppliers of inputs for the actual goods or services (physically related

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businesses), or with other business physically or economically related to the focus in other manners.

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*Please modify paragraph 49 as follows:*

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[0049] A business model, which described as business, is also broadly understood. It is a description in sufficiently precise and complete detail of performing a business that solves the business problem so that it is also to computer simulation. Preferably, a business model description may be structured as a combination of individual business elements, where a business element describes an individual aspect of a business. Business aspects may include outputs from modeled businesses provided to external businesses or customers, inputs to modeled businesses, internal transformations performed by modeled businesses, and quantitative assessments of performance of modeled businesses. In more detail, an individual element may describe an input necessary to the business, an output from the business (or a value provided by the business), a transformation between inputs and outputs, a capital item required or an amount of labor employed by the business for transforming inputs to outputs, a pricing or similar plan for recovering rewards from values produced, a financial model of the business's performance, and so forth. Importantly, the business elements and their relationships must be representable in a computer program so that the functioning of the described business model can be simulated. In other words, business model descriptions need to be computer simulateable. Equally importantly, each building block of a business model must represent a stand-alone module that is autonomous from but connected to other modules in such a way that the resulting business model can be recombined (according to genetic search methods) using the modules as the units of recombination. In other words, the encoding of business models through the use of building blocks must thereby allow business models to be evolvable to facilitate searches through the space of business models.

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*Please modify paragraph 51 as follows:*

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[0051] Then, in a next step, the methods of this invention describe a range, or space, of business models (step 131 in FIG. 14) any of which may solve the business problem at hand. The one or

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more final business models output by these methods are highly-ranked business models found in this described space. A range, or space, of business models, according to the present invention, is preferably described in a modular and combinatorial fashion by providing a plurality of alternative building-blocks, which can be interchangeably joined and linked to describe a business model. Generally, building blocks are packages of one or more of the related business elements (or for one or more groups of elements) that may be part of a business model description. Building blocks are interchangeable in a business model when one building block may be substituted for another related building block with little ~~[[of]]~~ or no disturbance to other building blocks present in the model. For example, a business model may change ~~[[is]]~~ its pricing scheme and mechanism by simply changing a building block. Interchangeability is promoted when the business elements packaged in a building block, and the relations of these elements to other elements that may be part of a business model, are described in a standardized fashion. For example, where a business produces two types of values, a good and a service for that good, its business model may have one building block with elements describing the good and another building block describing the service. Similarly, where a business sells a good with two different pricing models to two different classes of customers, its business model may have separate building blocks describing each pricing model. Importantly, building blocks in the present invention can be simulated by a computer program, especially because the package simulateable elements.

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*Please modify paragraph 59 as follows:*

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[0059] Business model selection criteria (fitness) may be profit, revenue, market share, value creation, or other business measures observed after a certain period of simulation. Value creation may depend not only on a business model itself but also on its interactions with the other business models in an ecosystem. Further criteria may depend on the performance of business models over a period of time. Several aspects of the time-behavior of business models may be available from the dynamic and competitive evolution of business models, according to which business-model performance is evaluated as the business method and its industry environment mutually interact and as new business models appear and former models disappear. For example,

910 one such criteria may be robustness, by having limited down-side risks while being adaptable to exploit up-side advantages.

*Please modify paragraph 105 as follows:*

911 [0105] FIG. 6 schematically illustrates a generation of this evolutionary method for a population of four business models--M1, M2, M3, and M4--which are illustrated as a single VA, OA, and RM building block along with a financial performance model. At situation 1, the four business models are about to begin their next generation. At situation 2, a period of simulation is complete, and the financial performances portrayed. For simplicity and without limitation, the fitness of these models is determined only by their revenue, according to which M1 and M3 ~~and are~~ the more fit. For the next generation, the most fit business models M1 and M3 are selected for cross-over, resulting in children M'1 and M'3, which then enter the next generation of the simulation. As parenthetically illustrated, child model M'1 demonstrates highly ranked performance in the next generation, and is indeed superior in all measures of revenue, profits, and market share.

*Please modify paragraph 177 as follows:*

912 [0177] After fitness of all the individual ISP business models was evaluated, ISP models for the next round of simulation were determined. This involved generating or selecting an initial business model population 102 based upon application of genetic operators 103 to the fittest models from the prior round of simulation ("breeding" new models). The method used in this example to select the "fittest" business models from the prior round of simulation is known as tournament selection. First an individual model, I, was chosen randomly from the population. A second individual model, J, was also chosen, and then these two individuals entered into a "tournament". A uniformly distributed random number was chosen between 0 and 1, and if its value was less than the value of the parameter "StrongSurvive", then the individual model with the higher fitness ("stronger") was selected for the next round. Otherwise, the individual model with the lower fitness ("weaker") was selected. This process ensured that slightly more fit business models did not quickly dominate the population. The value of StrongSurvive used was

Q12 0.75, meaning that the individual with the higher fitness survived three times ~~out~~ of four. The selection procedure follows.

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*Please modify paragraph 188 as follows:*

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Q13 [0188] First, simulation of the example described above predicted the emergence and disappearance of ISPs charging few or no fees. This prediction is illustrated with respect to FIG. 12A, which plots, for an instance of ecosystem simulation, the average monthly ISP fee versus the number of generations of the evolution program. Initially, ISP business models competed for customers and profits by lowering their monthly fees while deriving an increasing share of income from advertising revenues. Some ISP models indeed even eliminated their monthly ~~few~~ fee altogether. Thus in period 110, average monthly ISP fees steeply declines.

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*Please modify paragraph 191 as follows:*

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Q14 [0191] Next, FIG. 12B schematically illustrates an instance of a simulation of a more extended ecosystem than the example just described. This extended ecosystem, having the structure previously illustrated in FIG. 10, includes three business models of retailers, three business models of content providers, and three business models of portals, as well as three business models of ISPs. Here profits, revenue, and market share for all the models in the ecosystem are presented: window 113 presents performance of the three portals; window 114 presents performance of the three content providers; window 115 presents performance of the three ISPs; and window 116 presents performance of the three ~~ISPs~~ Retailers.

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